WHAT IS CLAIMED IS:

1. A quality-of-service guaranteed media access control method with dynamic granularity control for local wireless ATM networks, the ATM network transmitting information via a sequence of frames, each frame having reservation bandwidth and contention bandwidth in units of slots for supporting constant bit rate, variable bit rate, available bit rate, and reservation request (RVR) traffic, the method comprising:

(A) using a neural fuzzy traffic prediction network to predicts $\hat{g}_n$ at a time representing an end of the RB of frame n, where $\hat{g}_n$ is the predicted value of g_n, and g_n denotes a normalized offered load of the reservation request traffic that is activated within interval from the contention bandwidth of frame n-1 to the reservation bandwidth of frame n;

(B) based on $\hat{g}_n$, deriving favorable bandwidth of frame n and the contention bandwidth of frame n, wherein the favorable bandwidth is defined as a bandwidth capable of being allocated by remaining unreserved bandwidth of a maximum-sized frame satisfying the most stringent quality of service requirement; the remaining unreserved bandwidth is the bandwidth of the maximum-sized frame subtracted by allocated reservation bandwidth; the favorable bandwidth of frame n is defined as the number of slots allocated in the contention bandwidth of frame n, such that the contention bandwidth has a maximum steady-state throughput;

(C) at the end of contention bandwidth of frame n, constructing learning data in accordance with actual bandwidth allocation for being input to the neural fuzzy traffic prediction network to perform a learning operation.

2. The method as claimed in claim 1, wherein, in step (A), the neural

fuzzy traffic prediction networks predicts $\hat{g}_n$ based on a set of m input values taken from m most-recent g_k values (k = n-1 to n-m).

3. The method as claimed in claim 2, wherein, in step (B), the contention bandwidth is chosen as the smaller value between the remaining unreserved bandwidth and favorable bandwidth.

4. The method as claimed in claim 3, wherein, in step (C), at the end of contention bandwidth of frame n, actual achieved channel throughput is computed, and then, the offered load can be approximated by inversing a steady-state throughput function corresponding to the contention bandwidth allocated in frame n.

5. The method as claimed in claim 4, wherein the reservation bandwidth is provided for supporting for supporting the constant bit rate, variable bit rate, and available bit rate traffic, and the contention bandwidth is provided for supporting the reservation request traffic.

6. The method as claimed in claim 4, wherein each slot of the frame includes an ATM cell, and control fields of guard times and sync.